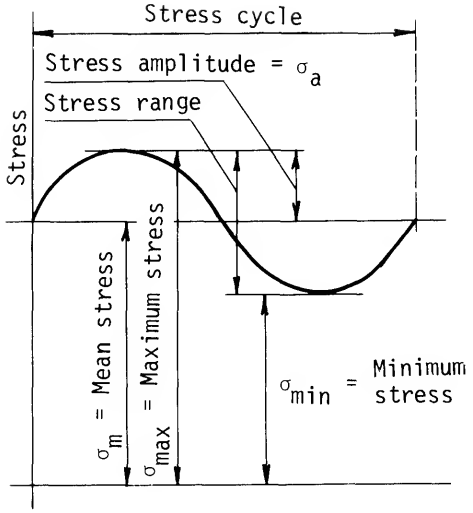

Fig. 13.1 Fatigue cycle notation

with caution (no allowance is made for other variables), a fairly satisfactory approximation can be obtained utilizing the following criterion:

$$\sum \frac{n}{N} = 1 \tag{13.1}$$

where n denotes the number of cycles at a particular working stress and N is the number of cycles to failure at the same stress level. The term n/N represents the cycle ratio. The value of N must be determined from a given fatigue diagram such as that shown in Fig. 13.2. To illustrate the method of approach, consider the following example.

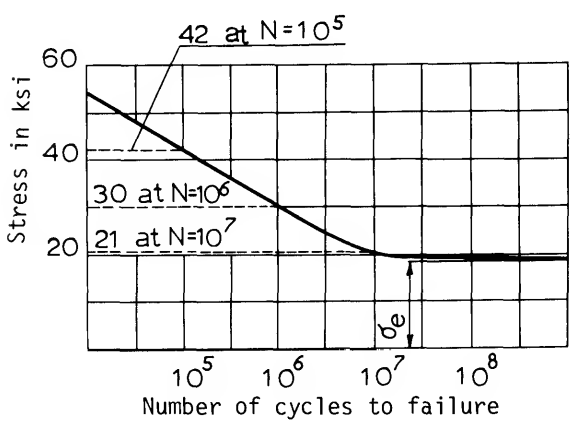

Fig. 13.2 Example of $\sigma - N$ fatigue diagram.